

Remarks

With claims 39-64 previously pending, claims 41, 43, 52, 53, 59, 60 and 62-64 have been cancelled. Further claims 39, 40, 42, 44, 46, 47, 50, 54 and 61 have been amended as described below.

Section 103 Rejection Based on Ohno or Kinoshita

Claims 39-64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over by any of Ohno et al. or Kinoshita. Based on the above amendments and the following remarks, this rejection is now believed to be overcome.

Independent claims 39 and 50 now claim a feature on the wafer is exposed to an etchant allowing growth of the feature in the critical dimension, and heating to cause the wafer to climb to a temperature up to 300 Celsius to minimize the critical dimension growth of the feature.

Ohno discloses forming a preventive film on the sidewalls of copper patterns to prevent side etching. See the Ohno abstract, and the last column at p. L1072. The preventive film of Ohno contrasts with the language of claims 39 and 50 which claim that the feature on the wafer is exposed to an etchant allowing growth in the critical dimension, which may be on the sidewalls. With a preventive film, in fact, Ohno is not concerned with minimizing critical dimension growth using heating or another technique.

Kinoshita discloses an etching process where a wafer is heated to a temperature of at least 350°C. Claims 39 and 50 claim heating to a maximum temperature of about 300 Celsius, a temperature below the minimum requirement of 350 C of Kinoshita. In fact by disclosing temperature must be at least 350°C, Kinoshita teaches away from the present invention. Accordingly, it is submitted that the claims 39 and 50 are allowable as nonobvious under 35 U.S.C. § 103 over either Ohno or Kinoshita.

Dependent claims 40, 42, 44-49 and 61 which depend on claim 39, and claims 51 and 54-58 which depend on claim 50 are likewise believed allowable over Ohno or Kinoshita based at least on their dependence

on claims 39 and 51. Applicant notes that modifications to the dependent claims are made to correspond with amendments made in claims 39 and 51, or to eliminate text to broaden the scope of the dependent claims.

Section 103 Rejection based on Krough et. al.

Claims 39-53 and 56-64 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Krough et. al. 1990. Based on the above amendments and the following remarks, this rejection is now believed to be overcome.

Independent claims 39 and 50 now claim heating to cause the wafer to climb to a temperature ranging above about 130 C to minimize the critical dimension growth of a feature exposed to an etchant.

Krough discloses that an increase in pressure maintains temperature of 86-116 C as noted in the Office Action, a range below the range of effective temperature of above 130 C, as claimed in claims 39 and 50. Claims 39 and 50 are, accordingly, believed allowable as nonobvious under 35 U.S.C. § 103(a) over Krough.

Dependent claims 40, 42, 44-49 and 61 which depend on claim 39, and claims 51 and 54-58 which depend on claim 50 are likewise believed allowable over Krough based at least on their dependence on claims 39 and 51.

Double Patenting Rejection

Claims 39-64 stand rejected for double patenting, both for statutory and nonstatutory obviousness-type double patenting based on U.S. Patent No. 6,046,116.

Regarding statutory double patenting, the currently pending claims 39 and 50 do not claim “reducing the pressure of a gas contained principally only in contact with a backside of the wafer in order to increase

the temperature of the wafer" as claimed in claim 5 of U.S. Patent No. 6,046,116, or similar language from other independent claims of U.S. Patent No. 6,046,116. Amendments to claims in this response are further believed to separate the scope of claims of this application from U.S. Patent No. 6,046,116.

Regarding obviousness type double patenting, should the claim scope as amended still be deemed obvious based on U.S. Patent No. 6,046,116, Applicants will consider submitting a terminal disclaimer to overcome this rejection.

Based on the above amendments and remarks, Applicant requests that the double patenting rejections be withdrawn.

Conclusion

In light of the above amendments and remarks, claims 39, 40, 42, 44-51, 54-58 and 61 are believed to be in condition for allowance. Reconsideration and allowance of these claims is respectfully requested.

Respectfully submitted,

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